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THE IMPACT OF GOVERNMENT-SPONSORED EDUCATION ABROAD ON ENTREPRENEURSHIP: CASE STUDY BOLASHAK SCHOLARSHIP

This paper investigates the impact of education abroad on the likelihood that a graduate will become an entrepreneur within five years after her/his graduation, using data of 5,555 graduates in Kazakhstan whose education abroad was sponsored by the Kazakhstani government, Bolashak International Scholarship, during the period 2001–2015. Using mixed methods of logit modelling and interviews with graduates we found that graduates who studied arts or technical subjects abroad while funded by the Bolashak International Scholarship are more likely to become entrepreneurs. However age, gender and degree are not associated with a choice in entrepreneurship. Perception of business environment in home country is important for entrepreneurship choice. Education abroad affects personal abilities to start and run a business in a home country.

Keywords: *international education, government-sponsored education programme, entrepreneurship, business environment, personal abilities.*

1. Introduction

Education abroad changes student life significantly in the areas of language usage, academic performance, personal development and career choice [5]. The main measurable outcome of study abroad is further employability of the graduates and application of the obtained skills and education in their home countries. [5; 21] employers give preferences to the graduates of a European Union student exchange programme, Erasmus. As it was noted by Zweig et al. (2004) on Chinese scholarship graduates the benefit for society from international scholarship graduates far exceeds true value of scholarship ([35]) In this paper we estimate the impact of education abroad on the likelihood that graduates become entrepreneurs using the case of the Kazakhstani Bolashak International Scholarship (Bolashak scholarship). The level of employability of the graduates whose studied abroad were funding by the Bolashak scholarship (Bolashak graduates) is very high (95.6%). However, only 1.1% from all employed are entrepreneurs.

As a rule, employers' preferences are in hiring staff who graduated from the international educational institutions. Based on a survey of international institutions promoting education abroad such as DAAD, the British Council, and the Australian Education Office Troobof found relationship between overseas study and development of personal skills [31]. Study abroad made a significant impact on knowledge production, philanthropy and social entrepreneurship [24].

At the present time the role of entrepreneurship in Kazakhstan is becoming more important. For the last 25 years Kazakhstanis engaged in the development of the business environment, which created the opportunities for the new comers, e. g. in 2015 the number of Kazakhstani enterprises nearly doubled compared to 2005 [1]. During the period 2005–2015 the number of Kazakhstani citizens engaged in entrepreneurial activities increased from 200, 000 to over 1, 200, 000. Government authorities explain this with the simplification of property registration procedures and tax system [18].

In this paper we investigate the factors which influence the choice of the graduates who studied overseas to become entrepreneurs. The first objective is to expand our understanding of the links between subject area of education and the choice of individual venturing linking specific individual characteristics including education and the event of venture creation. The second objective is to expand our understanding of the business environment where entrepreneurs operate, using interviews. Weak institutions and complex business environments could be one of the major factor preventing Bolashak graduates to self-select into entrepreneurship.

Based on the dataset of the Bolashak graduates we first test the role of various educational and individual characteristics on the likelihood that a graduate chooses to become an entrepreneur. In addition, we illustrate how business environment may affect graduates' perception on starting and running a business. Our finding demonstrates that the graduates who studied arts or technical subjects are more likely to become entrepreneurs, while age, gender and degree are not associated with a choice in entrepreneurship.

This study contributes to entrepreneurship literature by demonstrating the link between international education and the choice of becoming an entrepreneur building on prior works of van der Sluis et al. [32], Audretsch [2], Shane and Venkataraman [28], Dickson et al. [3]; Eckhardt and Ciuchta [6].

2. Bolashak International Scholarship

Since 1990 public expenditure on education (as a proportion of GDP) in Kazakhstan decreased from more than 8 per cent to approximately 3.5 per cent by the year 2003 [14]. The quality of education in the Kazakhstani educational organizations was declining during that period. So, the establishment of the new international programme – International scholarship «Bolashak» (the Bolashak International Scholarship) (from Kazakh language “bolashak” means “future”), introduced by the Kazakhstani President Nursultan Nazarbayev in 1993 was very timely. The main concept behind this scholarship is a full provision of tuition fee and leaving expenses to the Kazakhstani citizens with high performance in

education to study overseas. The rationale of this scholarship is to create the opportunities for the younger generation of the Kazakhstani society to learn and familiarize themselves with the new ideas and international values which otherwise would be impossible to achieve. The high aspirations related to the impact of this scholarship were based on the desire of the Kazakhstani society to have highly educated people able to make the desirable changes in Kazakhstan. The aim of the Bolashak scholarship is to increase human capital and gain knowledge through education in priority areas that will assist in the development of Kazakhstan [10].

So the young Kazakhstanis have the opportunities to study in 33 countries at 630 universities overseas [26]. At the present time around 10,000 students were graduated and now they hold different positions in state and private sectors in Kazakhstan. «The Bolashak» scholarship is crucially important for the internationalization of higher education in Kazakhstan. It is enriching the lives of ambitious and talented young Kazakhstani generation. The benefits that international study can bring to the individual student and to the country are wide-ranging. Widespread popularity and acceptance of the Bolashak scholarship have spawned analysis of the effectiveness of the programme, its impact on human capital growth [25], and graduates' employability in the domestic labor market [13]. At the VIII International Going Global Conference in Miami in 2014, the Bolashak scholarship has been recognized as one of the best among 11 academic mobility programmes.

3. Theoretical background

Entrepreneurship is described as the discovery, evaluation, and exploitation of entrepreneurial opportunities [2; 7; 28; 34].

Various institutional antecedents have traditionally been associated with the choice of individuals to fund business. The basic determinant that received significant attention is a level and area of education (technical, social science, arts, etc.) as it has known to be associated with a choice to become an entrepreneur [3]. At the same time, there is criticism using meta-analyses [32] which outlines that the relationship between education and entrepreneurship choice is ambiguous.

This research utilizes both individual and macro prospective in the decision of individual to become an entrepreneur. In this study, we develop a model that is derived from the individual opportunity nexus [6]. Entrepreneurs initially draw from a pool of opportunities and then engage in entrepreneurship based on market acceptance. Our model indicates that to understand self-selection into entrepreneurship, theories and methods must appropriately consider the fundamental nature of the process [2; 3; 28]. Dickson et al. [3] study specific programs of entrepreneurship education and suggests a positive link between such education and both the choice to become an entrepreneur and subsequent entrepreneurial success. This has an important implication for our study. Other theories that have applied in linking education to venture creation include signaling theory [32], knowledge spillover theory [2] and institutional theory [8; 16]. Former assumes that cognition factor is important to explain differences in employment choice.

Our model builds on the extent literature [2; 3; 6; 28; 32] and identifies main predictors of selection into entrepreneurship. These are individual characteristics such as mindset, age, gender, level and type of education, job background, experience (such as extra-curriculum activities), as well as environment characteristics such as industry.

4. Research Design

Based on the extent literature on entrepreneurship choice [2; 3; 28; 32], we use regression analysis to test the link between subject area of education and the choice of individual venturing. We further use interviews

to expand our understanding of the business environment where entrepreneurs operate.

We use dataset of the graduates – recipients of the Bolashak scholarship in Kazakhstan to perform the quantitative analysis on the role that individual characteristics (e.g. degree, age, gender and subject) play in a likelihood of becoming an entrepreneur. Second, we use qualitative method (interviews) with selected graduates - entrepreneurs and graduates - non-entrepreneurs) in Kazakhstan.

4.1. Bolashak data

Data on the employment of the Bolashak graduates was provided by the Center for International Programs over the period 2001–2015. Sample consists of 8,054 Bolashak graduates who obtained scholarship from 2001 and successfully completed studies (i.e. did not fail) by 2015. Although we have sample data from 2001, while Bolashak scholarship started in 1993 the total number of Bolashak graduates (The Government of the Republic of Kazakhstan, 2016) was 8,365, which means that our sample consists of 96% of all Bolashak graduates. From our sample we exclude unemployed graduates (145) and those who postponed employment (78). PhD graduates (119) were dropped some our sample, as there are no entrepreneurs among them. We also exclude both master graduates (506) and scholars who did internship (1,651) with restrictions on employment, which means that they could not choose to become entrepreneurs within five years after the graduation (quota for government officials, teachers, researchers and recent graduates). The description of variables included in our analysis is in Table 1.

Table 1

Variables

Variable	Description
Entrepreneur	It is a binary variable, which equals 1 if a Bolashak graduate is an entrepreneur and 0 otherwise
Age	Age of Bolashak graduates 5 years after the studies under the Bolashak scholarship were completed or at the year of report, 2016. Age of Bolashak graduates who finished studies after 2011 is calculated as at year 2016 when the data on employment were collected
Female	It is a binary variable, which equals 1 if graduate is female and 0 if male
Art, Humanities, Medicine, Natural, Technical	They are binary variables, equal 1 if graduate studied this subject and 0 otherwise. Social sciences were excluded to avoid multicollinearity. Here we adopted categories of subjects from the Centre for International Programs (http://bolashak.gov.kz/ru/pretendentu/perechni/perechen-prioritetnykh-spetsialnostej.html). Social is dropped to avoid multicollinearity
Master	It is a binary variable, which equals 1 if a Bolashak graduate studied master degree and 0 if bachelor degree

Interestingly, that less than two percent of our sample made a choice of becoming an entrepreneur. Graduates who became both bachelor and master degree, all subjects and in both genders (Table 2 and Figure 1).

Table 2

Summary statistics*

	Variables	Non-entrepreneurs		Entrepreneurs	
		Individuals	%	Individuals	%
Degree	Master	3,023	55.13	38	52.78
Subject	Art	108	1.97	5	6.94
	Humanities	254	4.63	4	5.56
	Medicine	201	3.67	2	2.78
	Natural	208	3.79	2	2.78
	Social	2,410	43.95	33	45.83
	Technical	2,302	41.98	26	36.11
Age	22–29	3,715	67.75	57	79.17
	30–39	1740	31.73	15	20.83
	40 an above	28	0.51	0	0.00
Gender	Female	2,767	50.47	41	56.94
	Total	5,483	100.00	72	100.00

* Source: Center for International Programs data 2001–2015.

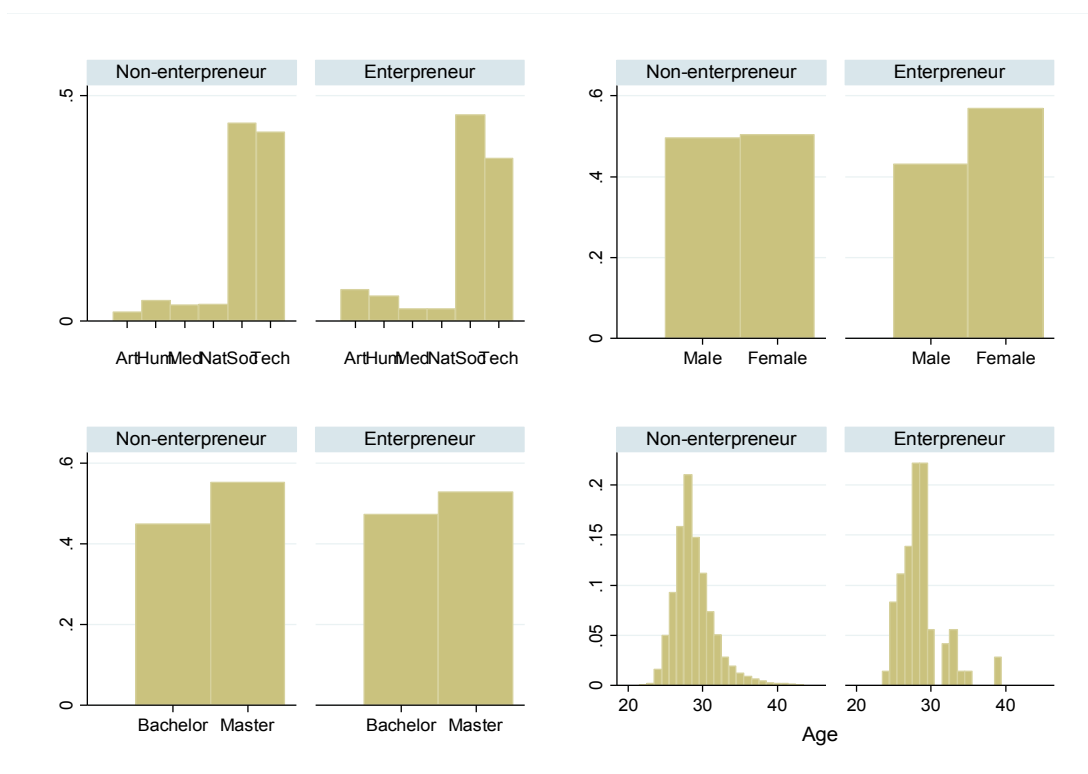


Figure 1. Density of subject, gender, degree and age by entrepreneurs and non-entrepreneurs*

* Source: Center for International Programs (2001–2015)

4.2. Empirical Model

The econometric model is used to identify the determinants of the likelihood to become an entrepreneur among graduates who studied abroad. Since the dependent variable, *entrepreneur*, is a binary variable, which takes only two values, one if a choice of entrepreneur is made, zero otherwise. We estimate binomial logit models (1) to test our ideas and probit model later on as a robustness check. We also applied sensitivity analysis in our model (2).

$$\text{Entrepreneur}_i = \begin{cases} 1, & \text{if graduate is an entrepreneur} \\ 0, & \text{otherwise.} \end{cases} \quad (1)$$

$$\Pr(\text{Entrepreneur}_i = 1) = F(\alpha + \beta_1 \sum_{j=1}^K \text{Personal}_i + \gamma_1 \sum_{j=1}^L \text{Education}_i + \delta_j \sum_{j=1}^M \text{Environment}_i) \quad (2)$$

where $F(\cdot)$ is a logit function with $F(\cdot) \in (0,1)$, Personal characteristics include *age*, age squared and *female*; Education characteristics include *country*, *master* and *subject*; and Environment characteristics include administrative *region* where graduate works.

4.3. Interview data

We have contacted a number of interviews with the Bolashak graduates. In order to make in-depth investigation of a business environment which directly affect the choice of entrepreneurship we applied a method and data collection following [11].

We implement inductive approach based on the coding [30]. The coding scheme includes two categories: perception of business environment and obtained competencies. We adopted the World Bank methodology for identifying dimensions of business environment available for qualitative methods [15]. The borrowed components enhancing competition in the business environment will provide implementation support to address government regulation and procedural issues that constrain company entry, operation, expansion and corruption [4].

Interviews were conducted to identify the impact of the external factors such as local government support and business environment on the likelihood that a Bolashak graduate becomes an entrepreneur. The interviewees were randomly selected from the list of

Bolashak graduates in Kazakhstan. Prior to interviews, graduates in focus group were contacted by telephone or social networking websites (e. g. www.facebook.com). The vast majority of respondents, after the researchers' promise of confidentiality, did not mind recording of the interviews. Original interview tapes were, therefore, collected and later typed with the maximum precision. The primary data was gathered from the interviews of 38 respondents who work in different companies and industries, with different types of ownership. Interviews were conducted with Bolashak graduates in different occupation. The list of interview questions included open-ended questions and Likert type scale questions, measuring the perception to the business environment and moderating variables. In order to assess the respondents' strength of opinion, a ten-point Likert scale (ranging from «Very easy» (1) to «Very difficult» (10) or «No support» (1) to / «Strong Support» (10)) was used for the questions. Interview protocol is in Appendix 1.

The 10-point Likert scale was adopted for greater sensitivity of the measurement instrument (Cummins and Gullone, 2000). The Likert scale data was analysed using the median-based approach. This has now become a part of an ongoing debate about the measurement of central tendency for Likert scale data [12]. This approach is particular recommended with a small sample size (no more than 15–20 observations) [29].

By interviewing 38 people we reached a saturation level at 16 interviewees who provided the maximum information and substantial variation sampling necessary to obtain representative answers on their perception of business environment in Kazakhstan and why some of them choose to become entrepreneurs. The model is based on sixteen interviews with seven entrepreneurs and nine employees of different companies.

Table 3 provides the general information about interviewees, such as current occupied position, industry and subject of study. The sample includes entrepreneurs who studied computer science.

Table 3

Description of representative sample size of respondents

Graduate	Position	Subject	Industry
G1	Entrepreneur	Computer Science	Software development
G2	Entrepreneur	Computer Science	Trade, commerce
G3	Middle level manager	Finance and Accounting	Services
G4	Brand manager	Information Systems	Sales and Trade
G5	Entrepreneur	Computer Science	software development
G6	Specialist	Finance and Accounting	Financial and advisory services
G7	Entrepreneur	Computer Science	Software development
G8	Lecturer	Pedagogy	Education
G9	Entrepreneur	Computer Science	Education
G10	Researcher	Mathematical Modelling	Education
G11	Lecturer	Finance and Accounting	Education
G12	Specialist	Marketing	Oil field services
G13	Manager	Law	Energy
G14	Head of Department	Telecommunications	Telecommunication
G15	Entrepreneur	Public Administration	Consultancy
G16	Entrepreneur	Information System	Software development

5. Results

5.1. Empirical results

The results of the logit regression (Equation 1) are presented in Table 4. Coefficients in the Table 4 are average marginal effects and standard errors are in parentheses. Marginal effects are not constant in logit regression.

Marginal effects depend on the value of an independent variable, thus the marginal effect must be computed for the particular value of an independent variable. Therefore, we calculate average marginal effects for convenience of our analysis.

Table 4

Regression results

Variables	Model 1 (baseline)	Model 2	Model 2
	Logit	Logit	Probit
<i>Age</i>	−0.41(0.54)	−0.41(0.54)	−0.45(0.54)
<i>Age squared</i>	0.01(0.01)	0.01(0.01)	0.01(0.02)
<i>Female</i>	0.18(0.25)	0.18(0.25)	0.17(0.26)
<i>Master degree</i>	0.41(0.32)	0.41(0.32)	0.48(0.32)
<i>Art</i>		1.04*(0.55)	1.08**(0.52)
<i>Humanities</i>		0.36(0.57)	0.39(0.51)
<i>Medicine</i>		−0.44(0.76)	−0.49(0.70)
<i>Natural</i>		−0.48(0.75)	−0.50(0.70)
<i>Technical</i>		1.94***(0.52)	2.06***(0.50)
Constant	−324.61(327.28)	−324.61 (327.28)	−302.51 (159.18)
Observations	5,555	5,555	5,555
LR chi2(24)	55.47	55.47	63.25
Prob > chi2	0.00	0.00	0.00
Pseudo R2	0.07	0.07	0.09
Log likelihood	−356.55	−356.55	−360.44

Note: *** p<0.01, ** p<0.05, * p<0.1. Administrative regions where graduates work, countries where they studied and years of graduation are controlled. Data source: Center for International Programs (2001–2015).

Age, gender and degree have no impact on whether a graduate will become an entrepreneur. However, *the subject*, which a graduate studied abroad, affects the probability that a graduate will become an entrepreneur. Graduates who studied technical subjects, i.e. computer science, are more likely to become

entrepreneur (at 1% level of significance) than those who studied other subjects. Graduates who studied arts subjects are also more likely to become entrepreneurs, however this effect is only significant at 10% level. Figure 2 shows density of degrees, gender, entrepreneur and age across subjects.

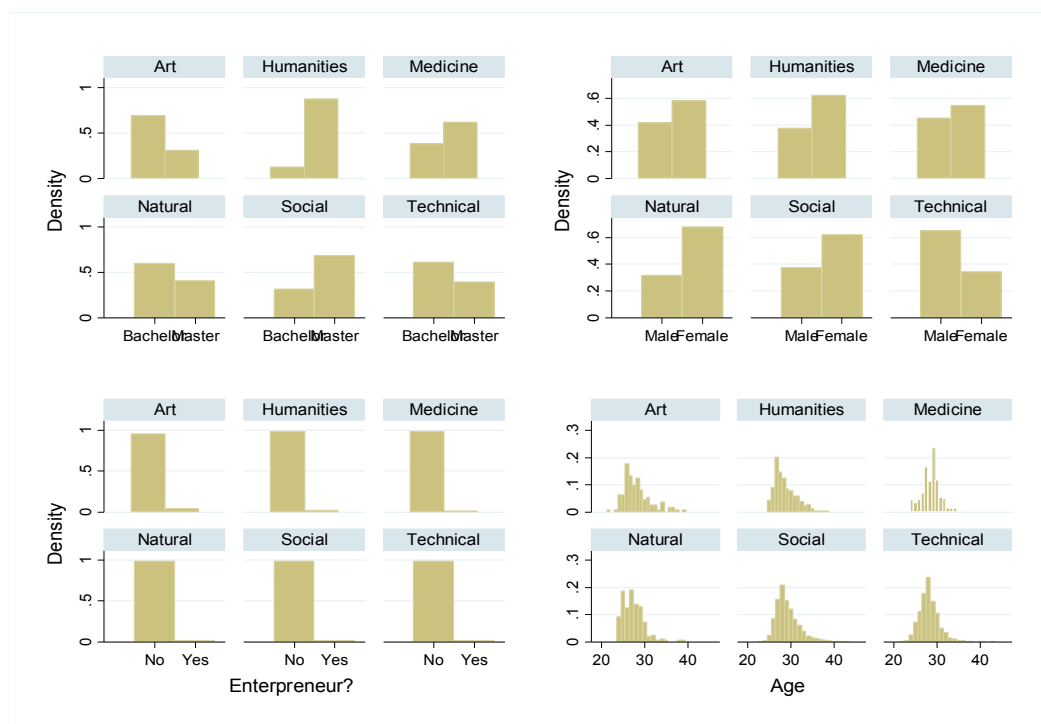


Figure 2. Density of degree, gender, entrepreneur and age by subject

Source: Center for International Programs (2001-2015)

5.2. Interview results

The majority of Bolashak graduates have confirmed that their education experience abroad helped with the development of their career path (70% of respondents) and also helped with obtaining their first job (25%). About 13% of respondents did not change their position, 90% of them are employees of the government institutions.

Respondents (G1, G15, G16), who are entrepreneurs, noticed no barriers to start their business and are more oriented to maintain their business. Among the main problems to run the business, they highlighted the high level of competition and a lack of governmental support. Respondents (G3, G4, G10, G11, G12), who are non-entrepreneurs, showed more trust in governmental regulation and highlighted a lack of knowledge in doing

business, such as ways to work with the governmental authorities. The most problematic issues of doing business for entrepreneurs are a lack of support from relatives, low density of population, low purchasing power of customers due to small salaries, absence of venture investment traditions.

Figure 3 in a spider diagram illustrates a distribution of respondents' perceptions of business environment.

As described above Bolashak graduates have least confidence in starting business and see competition as high. Bolashak graduates perceive starting a business to be more challenging than doing it. Bolashak graduates are aware of the government support policy, but do not trust into the government support process. Corruption is not perceived as a major

problem. Our research follows by the analysis of competencies and skills that entrepreneurs acquire during their study abroad which could be useful in starting and running their own businesses. To conduct this part of interview

we selected seven owners of businesses out of 16 respondents. The purpose of this stage is to identify competencies gained during graduates' study abroad that influenced their decision of becoming entrepreneurs (Table 5).

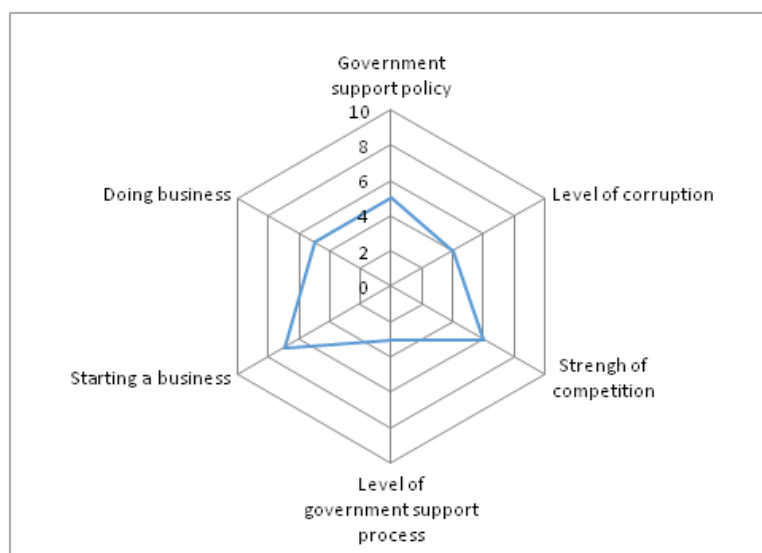


Figure 3. Median Likert Scale rating of the business environment perception*

*Source: Interviews.

Table 5

Competencies developed during Bolashak

Graduate	Subject	Statements from interviews about competencies
G1	Computer Science	«Studying abroad helped me to master programming and get better understanding of my field of study»
G2	Computer Science	«Studying abroad also means good knowledge of English, which is also important for young entrepreneurs»
G5	Computer Science	«I resolve all questions regarding to IT, design and marketing»
G7	Computer Science	«During my study my professor developed technology that helps to decrease costs of logistic services. I was really impressed and inspired by such application of computer technologies to the real world business. That was a moment when I've got my idea»
G9	Computer Science	«My mindset definitely has changed»
G15	Public administration	«I would say that international experience is important factor in this matter. When you've experienced good service abroad (dining at restaurant, renting a car, being stopped by police) you understand where you have to make your service better to be above the competition»
G16	Information system	«Personal development can help me to set goals and reach my full potential»
G8	Competencies	«I think the most important are: lean entrepreneurship, electronic business development and team management»

6. Conclusion

This study contributes to entrepreneurship literature on the discovery, evaluation, and exploitation of entrepreneurial opportunities [2; 7; 28]. Building on prior research, which identifies various individual and institutional antecedents associated with the choice of individuals to fund a business [3] we identified that Bolashak graduates are inspired and wish to become entrepreneurs in Kazakhstan. Established connections abroad and professional contacts were found to support them in identifying business opportunities and start business. More specifically we found that analytical skills enable graduates to make effective decisions with regards to potential projects, and recognize business opportunities. In addition, the Bolashak scholarship helped to develop two key components of successful entrepreneurs: personal abilities and education. Respondents stressed the importance of self-reliance, entrepreneurial spirit and team management exercised during their studies abroad. The most surprising result is that technical and art degree graduates are more likely to self-select into entrepreneurship. Surprisingly, the likelihood of becoming an entrepreneur was not affected by age, gender and the level of education (master/bachelor). Our contribution to institutional literature [8] is that we extend previous findings and state that doing business environment, with lack of support from relatives, low market size (low purchasing ability of customers), lack of venture investment and government support affect the perception of business environment. This in turn may influence the future choices of starting own business.

While providing valuable information, our study has limitations due to data availability. The sample size of entrepreneurs is small 72 out of 5,555 graduates, however, all entrepreneurs are presented among 6 subjects. We have also excluded graduates with restrictions on employment, who would be unable to choose to become entrepreneurs within five years after their graduation.

Based on the result of this study, we can conclude that the impact of international education programmes, such as the Bolashak scholarship, affects the choice of entrepreneurship conditional on the subject of education. Our results were supportive for the Bolashak scholarship improving competencies of graduates such as personal abilities and cognition. This result strongly suggests that the impact of international education in countries where entrepreneurship-oriented culture is poor or still in the embryonic stage of development will be greater than that in countries with a strong entrepreneurship-oriented culture.

Future research may want to investigate the relationship between entrepreneurial education and subsequent entrepreneurial selection and entrepreneurial success (e. g. high-growth, survival, productivity) amongst the Bolashak graduates. It would be interesting to divide the sample of graduates who studied abroad on those funded and not funded by the Bolashak scholarship, as this scholarship implies certain restrictions on the employment and career choice during the first five years after graduation and arrival to home country.

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**ВЛИЯНИЕ ФИНАНСИРУЕМОГО ПРАВИТЕЛЬСТВОМ ОБРАЗОВАНИЯ
ЗА РУБЕЖОМ НА ПРЕДПРИНИМАТЕЛЬСТВО: ТЕМАТИЧЕСКОЕ
ИССЛЕДОВАНИЕ СТИПЕНДИИ «БОЛАШАК»**

В данной статье рассматривается влияние образования за рубежом на вероятность того, что выпускник станет предпринимателем в течение пяти лет после окончания вуза, используя данные 5 555 выпускников в Казахстане, образование которых за рубежом спонсировалось правительством Казахстана, стипендией «Болашак интернэшнл» в период 2001–2015 гг. Используя смешанные методы логитного моделирования и интервью с выпускниками, мы обнаружили, что выпускники, изучающие искусство или технические предметы за границей, финансируемые Международной стипендией «Болашак», с большей вероятностью станут предпринимателями. Однако возраст, пол и степень не связаны с выбором в области предпринимательства. Восприятие бизнес-среды на родине важно для выбора предпринимательства. Обучение за границей влияет на личные способности начинать и вести бизнес в своей стране.

Ключевые слова: международное образование, финансируемая правительством образовательная программа, предпринимательство, бизнес-среда, личные способности.